We always knew it...

Demertzis, Stefanos

DOI: https://doi.org/10.1016/j.jtcvs.2018.04.109

We always knew it…

Stefanos Demertzis, MD

From the Department of Cardiac Surgery, Cardiocentro Ticino, Lugano, Switzerland; and the Department of Cardiovascular Surgery, University of Bern, Bern, Switzerland.

Disclosures: Author has nothing to disclose with regard to commercial support.
Received for publication April 25, 2018; accepted for publication April 26, 2018; available ahead of print June 1, 2018.

Address for reprints: Stefanos Demertzis, MD, Department of Cardiac Surgery, Cardiocentro Ticino, Via Tesserete 48, CH-6900 Lugano, Switzerland (E-mail: demertzis@cardiocentro.org).

J Thorac Cardiovasc Surg 2018;156:1402-3
0022-5223/$36.00

https://doi.org/10.1016/j.jtcvs.2018.04.109

Stefanos Demertzis, MD

Central Message

This shows successful transformation of surgical wisdom (pressure buildup during cardioplegia infusion into the aorta) to a standardizable diagnostic tool for testing adequacy of aortic valve repair.

See Article page 1399.

Aortic valve repair and valve-sparing procedures enable restoration of competence in the regurgitant aortic valve, and they are emerging as a feasible alternative to aortic valve replacement in the treatment of aortic root pathology with or without aortic insufficiency. In experienced and dedicated centers, short- and long-term results are excellent.[1-3] There are, however, several obstacles on the way to achieving this level of excellence. Successful aortic valve repair requires a deep understanding of the static and dynamic geometry of the aortic valve and aortic root, which is complex, despite existing systematic approaches and classifications.[4,5] Even with adequate theoretic preparation and armed with all necessary technical skills, surgeons need to deal with another obstacle when performing this type of surgery: the lack of a reliable technique to assess the result of the repair and thus to evaluate the need for adjustments or corrections before releasing the aortic crossclamp. Unlike in mitral repair, the saline test in aortic repair can only reveal gross failures because of the lack of adequate pressure and visualization, and it is therefore considered not sufficiently reliable.

The ingenious approach presented by Ikeno and colleagues[6] in this issue of the *Journal* aims to fill exactly this gap. It is based on the well-known practical observation that lack of pressure buildup during active infusion of cardioplegic solution into the aortic root points to an incompetent aortic valve. Ikeno and colleagues[6] succeeded in seeing in this common surgical wisdom a hidden opportunity. They conceived, developed, and standardized a diagnostic test to assess the adequacy of aortic valve repair before releasing the aortic crossclamp. In their setting, if pressure buildup was judged adequate, aortic valve repair was confirmed as acceptable on intraoperative transesophageal echocardiography. If not, they knew they had to correct. This is already a big step forward, and Ikeno and colleagues[6] deserve to be complimented. The next step would be to visualize and identify the mechanism of failure to correct it. This still requires interpretation of the static view on the repaired valve. One possible adjunct to the technique of Ikeno and colleagues[6] could be the parallel transesophageal echocardiographic evaluation of the valve during the maneuver, as proposed by Koshy and associates.[7] Additional morphologic and functional information obtained this way could help the surgeon to identify better the mechanism of failure. The technique presented by Ikeno and colleagues[6] needs to be validated in other settings and by other teams, hopefully in a coordinated and scientifically sound manner. The more surgical art is supported by standardized and scientifically founded techniques, the more cardiologists and surgeons will approach aortic valve repair. In the end, more patients, especially the younger among them, will be offered this high-quality surgical treatment.

References

1. Arabkhani B, Mookhoek A, Di Centa I, Lansac E, Bekkers JA, De Lind Van Wijngaarden R, et al. Reported outcome after valve-sparing aortic root replacement for aortic root aneurysm: a systematic review and meta-analysis. *Ann Thorac Surg*. 2015;100:1126-31.
2. Vojáček J, Žáček P, Dominik J. Aortic valve repair and valve sparing procedures. *Cor Vasa*. 2017;59:e77-84.
3. Schäfers HJ, Raddatz A, Schmied W, Takahashi H, Miura Y, Kunihara T, et al. Re-examining remodeling. *J Thorac Cardiovasc Surg*. 2015;149(2 Suppl):S30-6.
4. Boodhwani M, de Kerchove L, Watremez C, Glineur D, Vanoverschelde JL, Noirhomme P, et al. Assessment and repair of aortic valve cusp prolapse: implications for valve-sparing procedures. *J Thorac Cardiovasc Surg*. 2011;141:917-25.
5. Khoury El G, Glineur D, Rubay J, Verhelst R, d'Acoz Yd, Poncelet A, et al. Functional classification of aortic root/valve abnormalities and their correlation with etiologies and surgical procedures. *Curr Opin Cardiol*. 2005;20:115-21.

6. Ikeno Y, Tanaka H, Okita Y. Intraoperative aortic root pressure study for quantitative assessment of aortic regurgitation during valve-sparing root replacement: a preliminary report. *J Thorac Cardiovasc Surg*. 2018;156:1399-401.

7. Koshy T, Misra S, Sinha PK, Baiju S. A novel technique to assess aortic valve repair before releasing the aortic cross-clamp. *J Cardiothorac Vasc Anesth*. 2009;23:79-81.